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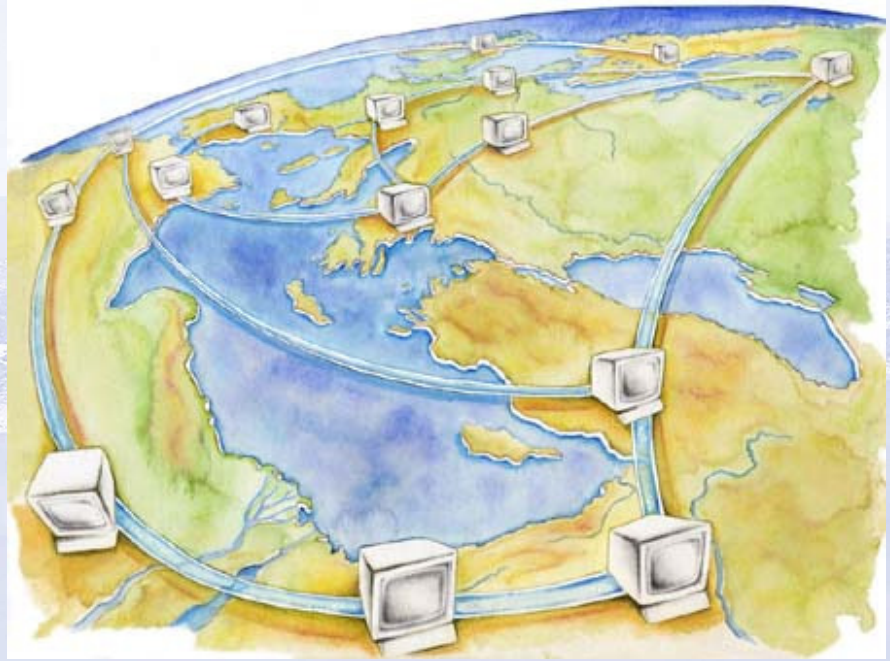

النظام الأورومتوسطي للمعرفة في مجال المياه

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Euro-Mediterranean Information System on know how in the water sector

Water Scarcity & Drought WG Activities

Jauad El Kharraz,
EMWIS Technical Unit

WS&D MED WG meeting, Madrid; 2010-02-17

Joint Process WGs objectives

- Facilitating the integration of the WFD principles in partner countries' water related policies.
- Producing recommendations for preparing national and local activities for the implementation of sound water policies.

- **Joint Process Phase 1 (2004-2006)**

WS&D WG set up in Sept'2004 in Brindisi

Draft report (2006)

- **Joint Process phase 2 (2007-2009)**

WS&D WG progress → Final Report (June'2008)

- **Joint Process new phase?**

WS&D WG

Country representatives

Working group	FR	GR	IT	SP	DZ	CY	EG	IL	JO	LB	MT	MA	PS	SY	TN	TR
Water scarcity & drought	x		x	x		x	x		x	x		x	x		x	x

+ Experts (organisations, research centres, etc) + EU institutions representatives

⇒EMWIS President asked water directors to nominate experts in the working group (WS & D) –May 2009

- **MED Dimension of Pilot River Basins, Brindisi, Sep'2004**
- **MED WG meeting, Brussels, Sep'2006**
- **Euro-Med Water Directors meeting, Athens, Nov'2006**
- **MED WS&D Plenary meeting, Sevilla, June'2007**

WS&D WG members

NAME	ORGANISATION/COUNTRY
MEMBER STATES	
Thierry DAVY	France, Water Agency
Giuseppina MONACELLI Martina BUSSETTINI	Italy, National Agency for Environment Protection and Technical services / ISPRA
Charis OMORPHOS	Cyprus, Ministry, Water Development Department
NON-EU COUNTRIES	
Essam KHALIFA Tarek ABDALLAH Tarek SADEK MOHIY	Egypt, Ministry of Water Resources and Irrigation Egypt, National Water Resources Plan Project
Hassen Lotfi FRIGUI	Tunisia, Ministry of Agriculture, Environment & water resources "General Directory of Water Resources"
Senturk KEVSER	Turkey, DSI, Investigation & Planning Department (www.dsi.gov.tr)
Deeb ABED AL-GHAFOUR	Palestine, Palestinian Water Authority (PWA)
Mohammad AL-ATRASH	Jordan, Ministry of Water & Irrigation (MWI), Director of Water Resources studies
Siham LARAICHI Aziz BOUIGNANE	Direction de la Recherche et de la Planification de l'Eau, SEE / MATEE – Morocco Agence du Bassin Hydraulique du Sebou (ABHS), Fès, Morocco
Mohamad EL MOURID	International Center for Agricultural Research in the Dry Areas (ICARDA), Tunis, Tunisia
Musa Najib NIMAH	Faculty of Agricultural And Food Sciences, American University of Beirut, Lebanon
Fadi COMAIR	Lebanon, Ministry of Energy and water General Director of Hydraulic and Electrical Resources

ORGANISATIONS	
Maria SERNEGUET BELDA	REMOC / MENBO
Eric MINO Jauad EL KHARRAZ	EMWIS / SEMIDE
Mohammed BLINDA Gaëlle THIVET	Plan Bleu
Ana IGLESIAS Dunixi GABINA	MEDROPLAN, Universidad Politécnica de Madrid (UPM), Spain
Keren RAITER	Friends of the Earth Middle East (FoEME)
Abdul-Latif KHALID	Palestinian Hydrology Group
Jochen FROEBRICH	University Hannover, Germany
Edwards INTERWIES	InterSus - Sustainability Services, Germany
EU institutions	
Stefan NIEMEYER Giovanni LAGUARDIA	EC-DG JRC
Henriette Faergemann	European Commission, DG ENV, Unit D1 - Water and Adaptation to Climate Change

WS&D WG

1st Phase (2004-2006) – Lead by EC & FR

Report preparation discussed in Brussels, Sept'2006

Main objective is to present the MED specificities regarding WS situations & D events and the role of the WFD.

Structure of the 1st report:

- **Introduction (WS & D in the Mediterranean)**
- **Chapter I: Definition and assessment of the different phenomena**
- **Chapter II: Drought Planning and Management**
- **Chapter III: Long term imbalances in supply & demand**
- **Chapter IV: Common principles (Conclusions & Recommendations)**

WS&D WG

1st Phase (2004-2006)

Main recommendations:

- **Water scarcity & Drought & Water Framework Directive**
  - **WS&D can be addressed through WFD**
  - **However, need to adapt the framework**
    - Concepts: river basin; quantitative status
    - Instruments: water pricing; cost recovery principle
- **Water scarcity & Drought & Risk management in the Mediterranean**
  - **Drought management plans**
  - **Demand / supply – side measures**
- **Water scarcity & Drought & need for further research in the Mediterranean**
- **Need of further data & case studies (missing information on water quality role..)**
- **Need to envisage an efficient development of sustained Droughts Early Warning Systems**

WS&D WG - 2nd Phase (2007-2009)
Lead by EMWIS, MENBO, MA & FR

Webpage administrated by EMWIS: www.emwis.net/topics/WaterScarcity

OBJECTIVES

- **Step 1: finalise Med WS&D report**
- **Step 2: collect data & information on impacts of WS&D**
- **Step 3: data analysis & assessment of WS&D in the Med**
- **Step 4: identification & analysis of 'best practices' for water saving measures & formulation of recommendations**

WS&D WG - 2nd Phase (2007-2009)

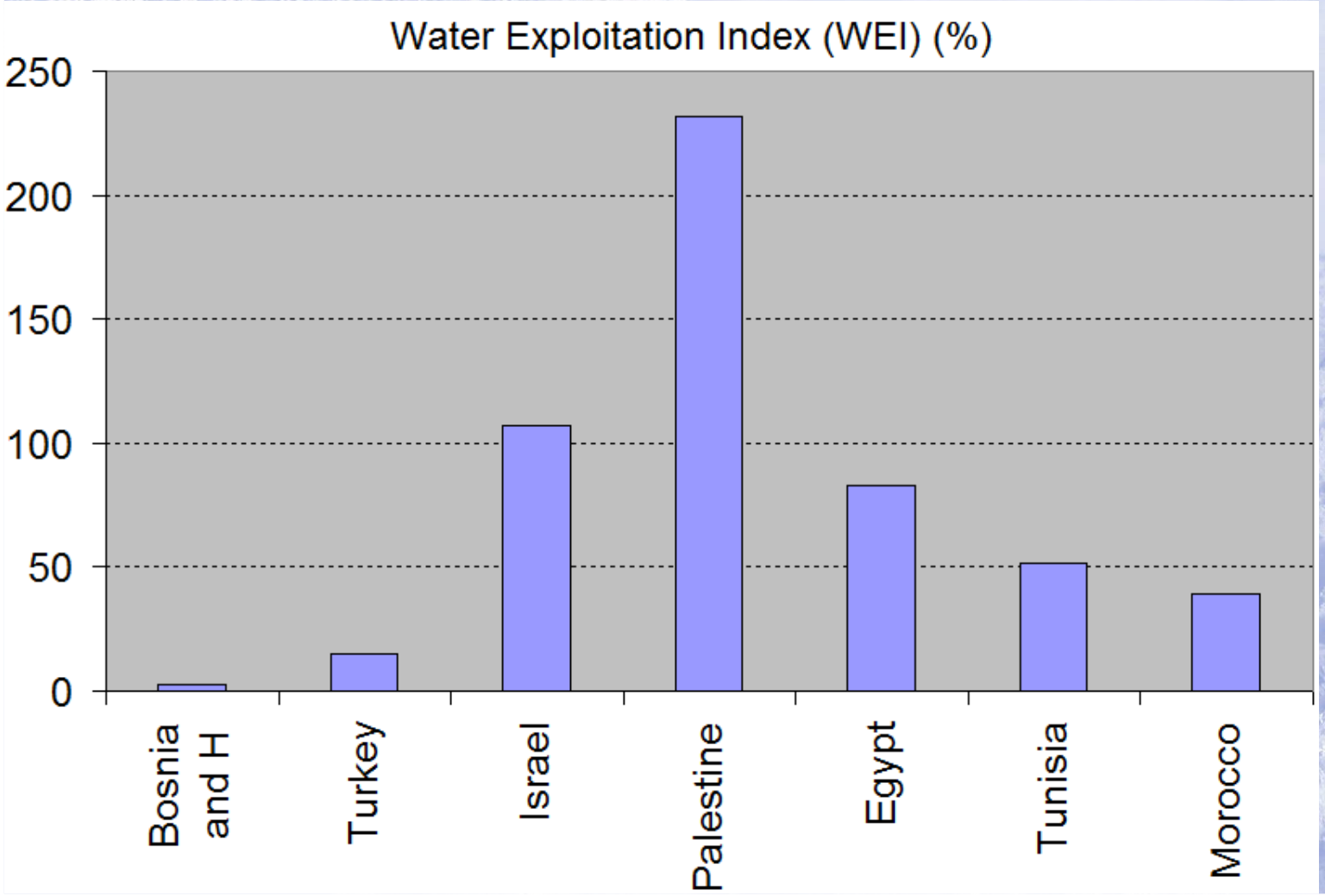
Survey

- **Aim of survey**: Identify current status of WS&D in Med countries and measures put in place to deal with them
- **Returns**: Responses received from Turkey, Palestine, Morocco, Bosnia and Herzegovina, Tunisia & Jordan
- **Strengths**: Valuable selection of qualitative data/success stories
- **Limitations**: Very incomplete data sets, difficulty of respondents to obtain the data, likely methodological inconsistencies amongst respondents

WS&D WG - 2nd Phase (2007-2009)

Survey analysis

Scope of impact: Water Exploitation Index



WEI in a country is the mean annual total demand for freshwater divided by the long-term average freshwater resources.

WEI > 20 %, water stress
WEI > 40 % severe water stress
(Raskin et al., 1997)

WS&D WG - 2nd Phase (2007-2009)

Survey analysis

Example: Impacts of the 1999 drought in Israel, Jordan and the Palestinian territories

- Winter 1998/1999- rainfall only 30% of annual average
- Impacts:
  - **Economic**: Severe agricultural water use restrictions, collapse of rain-fed farming in the West Bank, purchase of water on the black market
  - **Social**: water rationing in Jordan and the Palestinian Territories, with resulting health implications
  - **Environmental**: Degradation of stream water quality, sharp water depletion and increased salinity of groundwater systems, increased salinity of soils
  - **Other**: political ramifications

WS&D WG - 2nd Phase (2007-2009)

Survey analysis

Example: Tunisia

40% of years experienced drought in the last 12, with 2 acute droughts in 87/89 and 93/95

- **Impacts:**
  - **Economic: Restrictions of water use in agriculture, and fall in agricultural production (olives and cereals)**
  - **Social: Decrease in farmers' revenue**
  - **Environmental: Sharp increase in salinity of surface water and soils, drying up of lakes**

WS&D WG - 2nd Phase (2007-2009)
A wide range of measures reported

Preparation to WS&D situations: supply side management measures

- Water transfers
- Desalination & waste water reuse

- New storage facilities
- Use of marginal resources (groundwater)
- Aquifer recharge
- Improved efficiency of water distribution networks
- Relaxing environmental constraints

Demand side management measures

- Reduction of irrigation consumption
- Remote control
- Water recycling in the industry

- Water metering
- Mandatory rationing
- Restriction on municipal use
- Water markets (tariffs) and full cost recovery
- Water saving campaigns for voluntary actions
- Awareness campaign to adapt to minimize drought
- Increase in the regulation capacity for urban supply

Minimizing Water Scarcity and Drought Impacts

- Quality based reallocation of resources
- Others.

- Contingency plan
- Insurance and economic
- Public and tax relief
- Rehabilitation programmes

….. But we lack cost/benefits analysis

WS&D WG – 2nd Phase (2007-2009)

Main recommendations: (1/2)

- **Prior indicators could be set-up and agreed by the countries of the Mediterranean Region in order to ensure the collection of relevant and comparable data at national level and therefore reflect the true situation at river basin level.**

- **The impacts of climate change on the future evolution and extent of water scarcity and droughts need to be further assessed, as they will directly affect the water availability across the Mediterranean Region and are expected to exacerbate the water stress in already sensitive river basins.**

- **The economic, social and environmental impacts of the issues need to be better quantified. Impacts due to water scarcity and droughts have been hardly estimated so far.**

Main recommendations: (2/2)

Carry on the activity of the MED WG on WS&D based on the following tasks:

- Further develop the sharing of good practices
- Start working towards the establishment of an effective Mediterranean drought information system by discussing the steps and (financial and human) resources needed (pilot studies)
- Take into account the future results of research projects on the impacts of climate change on droughts
- Prepare detailed ToR for a Mediterranean Drought Observatory, linked to the forthcoming EU Med Drought Observatory and the Mediterranean Water Information System
- Set-up a range of indicators related to the extent and impacts of these issues, agreed by the Mediterranean countries
- Organise the collection of information within the countries, according to the set indicators
- Ensure the dissemination by the Med Observatory of an annual in-depth assessment on basis of countries' information

What's Next?

A data availability form has been prepared by EMWIS and sent to the WG members in December:

This questionnaire form aims at assessing data availability in MPC for WS&D indicators. It is based on documents and tools prepared by the European Water Topic Center of the EEA. The requested data are under three main categories: Water Availability, Water Abstraction, and Water Use.

The first results of this survey on data availability as well as data collection will be a basis for our current work!